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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/258,663 02/26/99 YARON

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EXAMINER

WM01/0705

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SEAL/EV

ART UNIT

PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/258,663	YARON ET AL.	
	Examiner	Art Unit	
	Lance W. Sealey	2871	
<p><i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i></p> <p>Period for Reply</p> <p>A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.</p> <ul style="list-style-type: none"> - Extensions of time may be available under the provisions of 37 CFR 1.138 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely. - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b). <p>Status</p> <p>1)<input type="checkbox"/> Responsive to communication(s) filed on <u>2/26/99</u>.</p> <p>2a)<input type="checkbox"/> This action is FINAL. 2b)<input checked="" type="checkbox"/> This action is non-final.</p> <p>3)<input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i>, 1935 C.D. 11, 453 O.G. 213.</p> <p>Disposition of Claims</p> <p>4)<input checked="" type="checkbox"/> Claim(s) <u>1-56</u> is/are pending in the application.</p> <p>4a) Of the above claim(s) _____ is/are withdrawn from consideration.</p> <p>5)<input type="checkbox"/> Claim(s) _____ is/are allowed.</p> <p>6)<input checked="" type="checkbox"/> Claim(s) <u>1-7, 9, 10, 15-37, 39, 40 and 45-56</u> is/are rejected.</p> <p>7)<input checked="" type="checkbox"/> Claim(s) <u>8, 11-14, 38 and 41-44</u> is/are objected to.</p> <p>8)<input type="checkbox"/> Claims _____ are subject to restriction and/or election requirement.</p> <p>Application Papers</p> <p>9)<input type="checkbox"/> The specification is objected to by the Examiner.</p> <p>10)<input type="checkbox"/> The drawing(s) filed on _____ is/are objected to by the Examiner.</p> <p>11)<input type="checkbox"/> The proposed drawing correction filed on _____ is: a)<input type="checkbox"/> approved b)<input type="checkbox"/> disapproved.</p> <p>12)<input type="checkbox"/> The oath or declaration is objected to by the Examiner.</p> <p>Priority under 35 U.S.C. § 119</p> <p>13)<input type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).</p> <p>a)<input type="checkbox"/> All b)<input type="checkbox"/> Some * c)<input type="checkbox"/> None of:</p> <p>1.<input type="checkbox"/> Certified copies of the priority documents have been received.</p> <p>2.<input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.</p> <p>3.<input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).</p> <p>* See the attached detailed Office action for a list of the certified copies not received.</p> <p>14)<input type="checkbox"/> Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).</p> <p>Attachment(s)</p> <p>15)<input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>16)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>17)<input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.</p> <p>18)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____.</p> <p>19)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>20)<input type="checkbox"/> Other: _____</p>			

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DETAILED ACTION

Notice of Change in Art Unit

1. The Group and/or Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 2671.

Allowable Subject Matter

2. Claims 8, 11-14, 38 and 41-44 are objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
3. The following is a statement of reasons for the indication of allowable subject matter:
Nothing in the prior art anticipates or suggests, in a method of providing data blocks describing three-dimensional terrain to a renderer, downloading first the block for which the coordinates were provided last among blocks at a common resolution level (claims 8 and 38), downloading excess blocks not currently needed by the renderer to fill up the local memory when not downloading blocks required by the renderer (claims 11 and 41). Claims 12-14 depend directly or indirectly on claim 11, and claims 42-44 depend directly on claim 41.

Claim Rejections - 35 USC § 102

4. The following is a quotation of 35 U.S.C. 102(e) which forms the basis for all novelty rejections set forth in this Office action:

A person shall be entitled to a patent unless—

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- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by applicant for patent.

5. Claims 1-2, 5-7, 9, 16-17, 19-22, 31-32, 35-37, 39 and 46-51 are rejected under 35

U.S.C. 102(e) as being anticipated by Migdal et al. ("Migdal '783", U.S. Pat. No. 5,760,783).

6. Migdal '783, in disclosing a system and method for computer modeling of 3D objects, also discloses, with respect to claim 1, a method of providing data blocks (LOD generation block 1050, FIG.10), describing three-dimensional terrain to a renderer (raster subsystem 224, FIG.2), the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels (col.9, ll.5-17), the method comprising:

- receiving from the renderer one or more coordinates in the terrain along with indication of a respective resolution level (col.16, ll.1-21);
- providing the renderer with a first data block which includes data corresponding to the one or more coordinates from a local memory (col.9, ll.5-14);
- downloading from a remote server one or more additional data blocks which include data corresponding to the one or more coordinates if the provided block from the local memory is not at the indicated resolution level (col.8, l.66-col.9, l.36 and FIG.2. Local memory: texture memory 226. Remote server: graphics display system 200).

7. Concerning claims 2 and 32, Migdal '783 discloses providing the first data block comprises providing the data block from the highest resolution level which includes data

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corresponding to the one or more coordinates (col.16, ll.1-21).

8. Regarding claims 5 and 35, Migdal '783 discloses receiving a plurality of coordinates included in a plurality of respective distinct blocks, and wherein downloading the one or more blocks comprises downloading blocks including data corresponding to at least some of the plurality of coordinates (col.8, l.66-col.9, l.36).

9. With respect to claims 6 and 36, Migdal '783 discloses downloading blocks in an order determined according to their resolution levels (col.8, l.66-col.9, l.36).

10. Concerning claims 7 and 37, Migdal '783 discloses downloading blocks of lower resolution levels before blocks of higher resolution levels (col.16, ll.1-21).

11. Regarding claims 9 and 39, Migdal '783 discloses downloading the blocks according to the order in which the coordinates were provided (col.16, ll.5-11).

12. With respect to claims 16 and 46, Migdal '783 discloses a method of displaying three-dimensional images, comprising:

- establishing a communication link between a local processor and a server (col.8, l.66-col.9, l.36);
- transferring data blocks describing terrain over the communication link from the server to the local processor (col.8, l.66-col.9, l.36); and
- rendering a three-dimensional terrain image at the local processor responsive to the data blocks (display 232, FIG.2, and col.7, ll.13-16).

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13. Concerning claims 17 and 47, Migdal '783 discloses the establishment of a low-speed communication link (arrow between bus 201 and geometry engine 222, FIG.2).

14. Regarding claims 19 and 48, Migdal '783 discloses transferring the blocks responsive to a list of coordinates generated by the processor (col.8, l.66-col.9, l.36).

15. With respect to claims 20 and 49, Migdal '783 discloses preparing the list of coordinates responsive to a viewpoint from which the image is rendered (col.16, ll.1-21 and col.8, l.66-col.9, l.36, especially col.9, ll.18-21).

16. Concerning claims 21 and 50, Migdal '783 discloses the viewpoint changing over time following a predetermined course (col.10, ll.13-20).

17. Regarding claims 22 and 51, Migdal '783 discloses receiving the predetermined course from the server (col.10, ll.13-49, especially ll.47-49).

18. Finally, concerning claim 31, Migdal '783 discloses an apparatus for providing data blocks describing three-dimensional terrain to a renderer (FIG.2), the data blocks belonging to a hierarchical structure which includes blocks at a plurality of different resolution levels, the apparatus comprising:

- a local memory, which stores data blocks corresponding to coordinates proximal to a current viewpoint of the renderer (texture memory 226, FIG.2);
- a communication link, through which the memory receives the data blocks from a remote server (arrow between bus 201 and geometry engine 222, FIG.2); and

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- a processor which receives one or more specified coordinates along with indication of a respective resolution level from the renderer, provides the renderer with a first data block which includes data corresponding to the one or more specified coordinates from the local memory, and downloads over the communication link one or more additional data blocks which include data corresponding to the one or more coordinates if the first block is not from the indicated level (computer graphics display system 200, FIG.2).

19. Therefore, in view of the foregoing, the examiner concludes that the above claims have been anticipated by Migdal '783.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 3-4, 10, 33-34 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of *In re Gazda*, 104 USPQ 400 ("Gazda").

22. With respect to claims 3 and 33, Migdal '783 does not disclose downloading a block at a resolution level higher than the resolution level of the first block; nor does it disclose claims 4 and

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34, downloading the blocks from a succession of resolution levels, from the level immediately higher than the resolution level of the first block up to the maximal existent resolution level on the server not above the indicated resolution level; nor does it disclose claim 10, downloading first the block for which the coordinates were provided last. Instead, consistent with applicants' claim 2, Migdal '783 provides the data block with the highest resolution first. But *Gazda* stands for the idea that it is obvious to reverse the order of the elements.

23. *Gazda* involved a clock wound by turning the steering wheel of a car (104 USPQ at 400). The applicant's clock featured a pawl-and-ratchet mechanism (104 USPQ at 401). The way the applicant's invention worked was that turning the steering wheel moved the ratchet wheel of the clock relative to the pawl to actuate a train of gears which wound the clock (104 USPQ at 401). The primary reference used to reject the applicant's claims featured an automobile clock that was stationary relative to the car, being mounted on the stationary structure of the steering column (instead of movable with the wheel as in the applicant's device), and was wound through a gearing connection by turning the steering wheel in one direction only (104 USPQ at 401). A secondary reference was used to reject the pawl-and-ratchet element of the applicant's claim (104 USPQ at 401).

24. The CCPA reasoned that whether the clock was mounted on the steering wheel or the steering wheel post "was only a matter of choice amounting to a mere reversal of parts", and the CCPA further agreed with the examiner who argued that the location of the ratchet means at the

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input end of the winding connection instead of the output end was "merely a matter of choice and expediency" (104 USPQ at 402).

25. Applying the reasoning of *Gazda* to this application, downloading a block at a resolution level higher than the resolution level of the first block is a matter of choice amounting to a mere reversal of which block is downloaded first. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to make this change.

26. Therefore, in view of the foregoing, claims 3-4, 10, 33-34 and 40 are rendered unpatentable by Migdal '783 and *Gazda*.

27. Claims 15, 18, 45, 48 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Migdal et al. ("Migdal '702," U.S. Pat. No. 5,886,702).

28. With respect to all of these claims, Migdal '783 does not disclose downloading the blocks via the Internet. However, Migdal '702 discloses this element at col.10, ll.27-41.

29. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 to effect downloading over the Internet. Such a modification to Migdal '783 would increase flexibility by expanding the sources of images that describe the terrain of places to which pilots want to fly.

30. Accordingly, in view of the foregoing, claims 15, 18, 45, 48 and 55 are rendered unpatentable by Migdal '783 and Migdal '702.

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31. Claims 23-24, 26-27 and 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Viebahn et al. ("Viebahn," U.S. Pat. No. 5,798,713).

32. With respect to claims 23 and 52, Migdal '783 does not disclose a suggested course for landing in an airport. However the Viebahn process for representing flight guidance information discloses this element in FIGS.3-6.

33. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 with Viebahn to provide a suggested course for landing in an airport. Such a modification to Migdal '783 would make the pilot's task easier by summarizing the information relevant to the landing phase of a flight within an overall image which is of favorable ergonomic form.

34. The other claims in this rejection will now be considered: With respect to claims 24 and 53, Viebahn discloses the user of the processor changing the view direction from the viewpoint without removing the viewpoint from the predetermined course (see drawing descriptions of FIGS.3-6).

35. Concerning claim 26, Viebahn discloses transferring blocks which include altitude data of the terrain at col.4, ll.64-65.

36. Finally, regarding claim 27, Viebahn discloses transferring blocks which include objects to be overlaid on the terrain at col.4, ll.64-65 (flight altitude information).

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37. Therefore, in view of the foregoing, the examiner concludes that claims 23-24, 26-27 and 52-53 have been rendered unpatentable by Migdal '783 and Viebahn.

38. Claims 25 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Reber et al. ("Reber," U.S. Pat. No. 6,111,568).

39. With respect to both of these claims, Migdal '783 does not disclose the viewpoint being controlled by a user of the processor. This element is disclosed by Reber at col.10, ll.39-41 and col.12, ll.34-36.

40. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 with Reber to give the user control over the viewpoint. Such a modification to Migdal '783 would enhance the pilot's safety by presenting him or her with a telepresence within the viewed environment.

41. Accordingly, in view of the foregoing, claims 25 and 54 are rendered unpatentable by Migdal '783 and Reber.

42. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Migdal '783 in view of Viebahn and further in view of Asenio et al. ("Asenio," U.S. Pat. No. 5,652,863).

43. Migdal '783 does not disclose rendering images using representations of at least some of the objects overlaid on the terrain according to settings made by the user of the local processor. However, the Asenio graphical method of media partitioning on a hard disk discloses this element at col.1, l.65-col.2, l.17.

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44. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Migdal '783 with Asenio to give the user control over the properties of the representations of the objects overlaid on the terrain. Such a modification to Migdal '783 would enhance the user's ability to more clearly see important information.

45. Accordingly, in view of the foregoing, claims 25 and 54 are rendered unpatentable by Migdal '783 and Reber.

46. Claims 29 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood et al. ("Lockwood," U.S. Pat. No. 4,070,705) in view of Migdal '783.

47. Lockwood, in disclosing a simulation apparatus, also discloses a method of pilot training (col.1, ll.9-23) and loading a course of a flight vehicle into a local processor (col.3, ll.39-49). However, Lockwood does not disclose the other elements of establishing a communication link between a processor and a server, transferring data blocks over the communication link to the server from the local processor, and rendering a 3D terrain image at the local processor. These are disclosed by Migdal '783 in a manner similar to the way these elements are disclosed in claim 16 (see paragraph 12 above).

48. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Lockwood with Migdal '783. Such a modification to Lockwood would enhance the pilot's sense of realism by delivering a texture image of the terrain quickly and efficiently.

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49. Accordingly, in view of the foregoing, claims 29 and 56 are rendered unpatentable by Lockwood and Migdal '783.

50. Finally, claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lockwood in view of Migdal '783 and further in view of Viebahn according to the same rationale used to reject claims 23 and 52. Therefore, in view of the foregoing, the examiner concludes that claim 30 has been rendered unpatentable by Lockwood, Migdal '783 and Viebahn.

Conclusion

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lance Sealey whose telephone number is (703) 305-0026. The examiner can normally be reached Monday-Friday from 7:00 am to 3:30 pm EDT.

52. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached on (703) 305-9798. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

53. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700 or the Customer Service Office at (703) 306-0377.

Mark Zimmerman
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TECHNOLOGY CENTER 2600